

## CASE REPORT

# A Relentless and Aggressive Proliferation of a Verrucous Lesion

Raj Kumar Badam, Sharath Chandra Bontha, Arshia Shereen, Supraja Chowdary

## ABSTRACT

Proliferative verrucous leukoplakia (PVL) was first described by Hansen in 1985, is a clinical form of oral leukoplakia defined by its progressive features, and potential to develop into cancer. PVL behaves in a more aggressive and relentless manner than the more innocuous white oral lesions that it can resemble clinically. In this paper, we report a case of PVL transforming into squamous cell carcinoma.

**Keywords:** Proliferative verrucous leukoplakia, White oral lesions, Oral squamous cell carcinoma.

**How to cite this article:** Badam RK, Bontha SC, Shereen A, Chowdary S. A Relentless and Aggressive Proliferation of a Verrucous Lesion. *J Orol Res* 2013;3(2):132-135.

**Source of support:** Nil

**Conflict of interest:** None declared

## INTRODUCTION

Proliferative verrucous leukoplakia (PVL) is a rare oral leukoplakia, principally characterized by chronic proliferation, multiple occurrences and refractoriness to treatment. Its rate of malignant transformation is extremely high.<sup>1</sup> The characteristics of its clinical and pathological progress are considered vital basis for the diagnosis of PVL because there are no particular differences between the pathological changes of PVL and those of oral verrucous leukoplakia (OVL).<sup>2,3</sup> Hansen et al first described PVL as those lesions characterized by having a high risk of malignant transformation.<sup>4</sup> PVL grows slowly and can take up to 7.8 years to become cancerous. The process is irreversible and usually progresses to cancer, this warrants attention.<sup>1</sup> In this paper, we report a case of PVL transforming into squamous cell carcinoma in a span of 6 months.

## CASE REPORT

A 35-year-old male patient (Fig. 1) visited to oral medicine with a chief complaint of white patches on his left cheek and palate since 6 months with history of smoking, gutka chewing and consumption of 90 ml alcohol every day. On intraoral examination a raised corrugated white patch was seen on the left buccal mucosa extending the whole of the left buccal mucosa as well as the left hard palate and gingiva with respect to upper left maxillary molars which is non-scrapable (Figs 2 and 3), provisionally diagnosed as homogenous leukoplakia of the left buccal mucosa and hard plate.



Fig. 1: Profile photograph of the patient



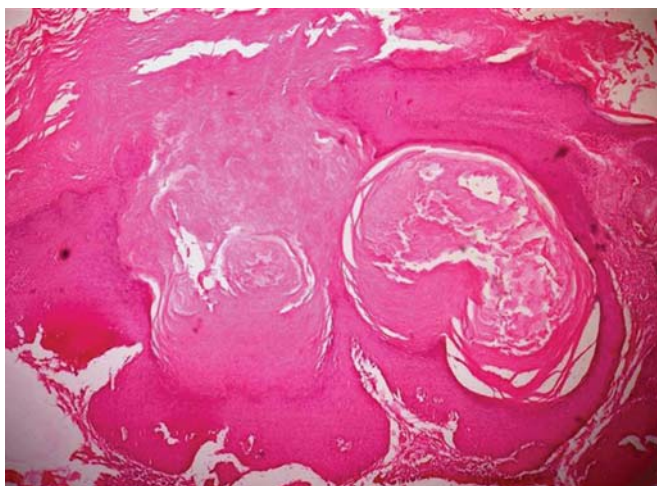
Fig. 2: Lesion extending the whole of the left buccal mucosa



Fig. 3: Lesion on the hard palate and gingiva of maxillary second quadrant molar teeth

## HISTOPATHOLOGY

Incisional biopsy of the lesion from the left buccal mucosa and palate was done, the hematoxylin and eosin (H&E) sections showed epithelial proliferation in the form of exophytic projections covered by hyperorthokeratotic stratified squamous epithelium and in few areas there is an endophytic projection into underlying connective tissue showing inflammatory cells and adipose tissue (Fig. 4),



**Fig. 4:** H&E showing epithelial proliferation in the form of exophytic projections covered by hyper orthokeratotic stratified squamous epithelium and, in few areas, there is a endophytic projection in to underlying connective tissue showing inflammatory cells and adipose tissue

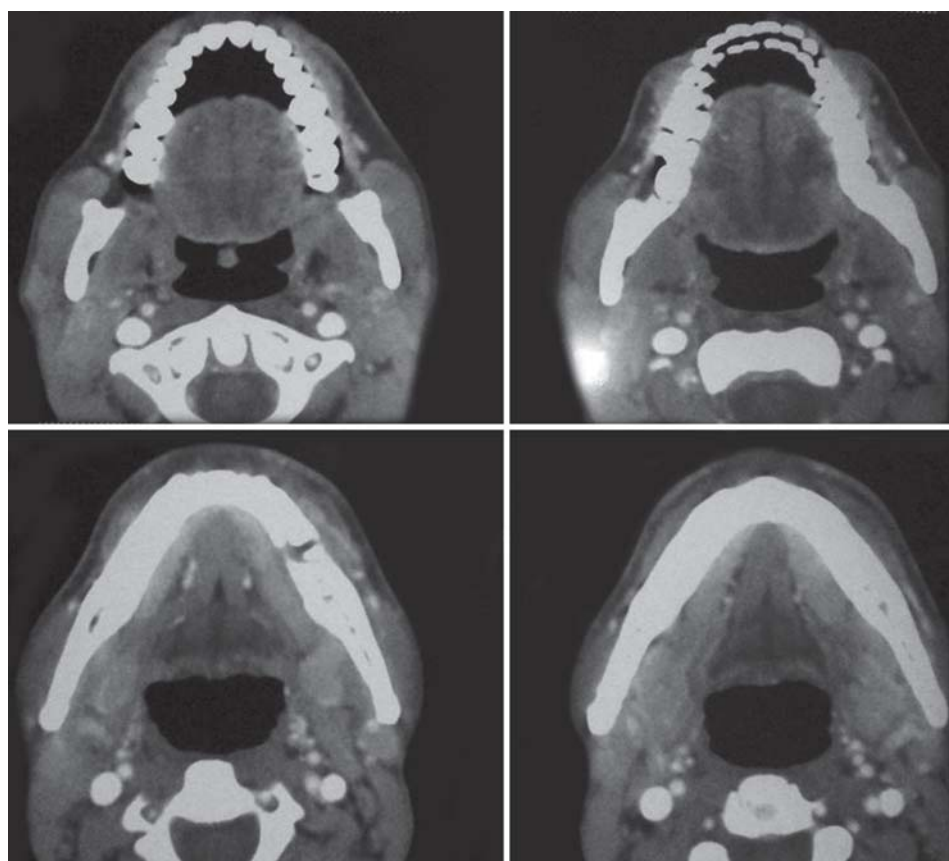
suggestive of PVL, following which the lesions were surgically excised, the H&E sections of the left buccal mucosa showing squamous epithelium arranged in large sheets with cellular polymorphism with prominent nucleoli and keratin pearls, with report of well differentiated squamous cell carcinoma, with a final diagnosis of PVL leading to squamous cell carcinoma was attained at. Computed tomography was done to rule out the bony involvement, revealed no alveolar or bony involvement (Fig. 5).

## TREATMENT

With deliberate discussions with oral surgeons, oncologist and radiation oncologist, the patient was posted for radiation therapy with Cobalt 60 teletherapy with a depth of 6 cm to the head and 3.5 cm for the neck region with a total of 44 Gy. Postoperatively the patient developed trismus (Fig. 6). Patient was given oral physiotherapy to elevate the symptoms of trismus and antioxidants along with benzalkonium oral rinse has been prescribed to the patient. The postoperative response has been excellent in this case with no recurrence of the lesion in the 1.5 year follow-up.

## DISCUSSION

Oral leukoplakia (leuko = white; plakia = patch) is defined by the World Health Organization (WHO) as 'a white patch



**Fig. 5:** Axial computed tomography showing no involvement of the bone





**Fig. 6:** Postradiotherapy with trismus

or plaque that cannot be characterized clinically or pathologically as any other disease.' The term is strictly a clinical one and does not imply a specific histopathological tissue alteration. Oral leukoplakias, where the white component is dominated by papillary projections, similar to oral papillomas, are referred to OVL. Oral leukoplakias with this clinical appearance but with a more aggressive proliferation pattern and recurrence rate are designated as PVL. The malignant potential is very high in PVL.<sup>5</sup> PVL is a rare with an incidence of less than 1% of adults in United States with no data on the worldwide incidence is reported, and is often seen in middle aged and elderly women, occurring predominately on the buccal mucosa, palate, gingiva and tongue.<sup>1</sup> Hansel et al described PVL as an entity that is difficult to treat effectively, because of multiple recurrences and the appearance of new lesions.<sup>2</sup> Hansel et al classified the pathological process of PVL into 10 grades, i.e. normal oral mucosa (0), homogenous leukoplakia (2), verrucous hyperplasia (4), verrucous carcinoma (6), papillary squamous cell carcinoma (8), and poorly differentiated carcinoma (10), in which the odd scores refer to a status intermediate between those referred to by the adjacent even scores.<sup>1</sup>

The etiology of PVL is unclear, however role of tobacco and alcohol has been documented as potential causes of this lesion, but human papilloma virus (HPV) particularly HPV16, may play an important role, though Began et al failed to find any such association.<sup>6,7</sup> PVL usually presents as a solitary flat homogenous leukoplakia with involvement of multiple sites at the time of diagnosis.<sup>8,9</sup> Whatever, may be the initial presentation, recurrence after treatment is the rule. Soon after first treatment the lesions appear again, not only at the previous site but also at new sites—the gingiva being affected sites, hence the term PVL was introduced.<sup>9</sup> The proliferative effect of PVL was explained on basis of

the high rate of field cancerization existing in PVL patients. PVL exhibits persistent growth, eventually becoming exophytic and verrucous in nature. As the lesions progress, they may transform into full fledged squamous cell carcinoma usually within 8 years of initial PVL presentation, in our case the progression was very rapid and it transformed into oral squamous cell carcinoma within 6 months, with the massive extension of the lesion. Histopathologically, PVL changes gradually from a simple plaque of hyperkeratosis without dysplasia to verrucous hyperplasia, followed by verrucous carcinoma and finally oral squamous cell carcinoma.<sup>9</sup>

Clinical differential diagnosis would range from frictional keratosis, homogenous leukoplakia, papilloma, papillary hyperplasia, Cowden's syndrome, verrucous hyperplasia and verrucous carcinoma. The ambiguity of PVL is further aggravated because there are no criteria that dictate how extensive the leukoplakic changes should be or how many or which oral subsites should be involved or how many recurrences should have occurred in order to qualify for the diagnosis of PVL.<sup>10</sup> This lack of exact diagnostic criteria is a prime reason due to which patients of PVL do not get correct treatment. The treatment modalities for PVL includes the use of multiple techniques such as CO<sub>2</sub> laser surgery, surgery associated with radiotherapy, cryotherapy, retinoid A, systemic vitamin A therapy, topical vitamins, bleomycin and photodynamic therapy.<sup>8</sup>

## CONCLUSION

PVL is a rare but highly aggressive, progressive from of oral leukoplakia characterized by having a high risk of malignant transformation. PVL grows slowly and can take up to 7.8 years to become cancerous. The lack of exact diagnostic criteria is a prime reason due to which patients of PVL do not get correct treatment. Hence it is necessary that the concept of PVL should be modified and quantified so that a prompt and better treatment can be rendered to these patients, thus improving their prognosis, warrants attention.

## REFERENCES

1. Ge L, Wu Y, Wu LY, Zhang L, Xie B, Zeng X, et al. Case report of rapidly progressive proliferative verrucous leukoplakia and a proposal for aetiology in mainland China. *World J Surg Oncol* 2011;9:26.
2. Bagán JV, Murillo J, Poveda R, Gavalda C, Jiménez Y, Scully C. Proliferative verrucous leukoplakia: Unusual locations of oral squamous cell carcinomas, and field cancerization as shown by the appearance of multiple OSCCs. *Oral Oncol* 2004;40:440-43.
3. Cabay RJ, Morton TH Jr, Epstein JB. Epstein. Proliferative verrucous leukoplakia and its progression to oral carcinoma: A review of the literature. *J Oral Pathol Med* 2007;36:255-61.

4. Bagan JV, et al. Epstein-Barr virus in oral proliferative verrucous leukoplakia and squamous cell carcinoma. A preliminary study. *Med Oral Patol Cir Bucal* 2008 Feb;13(2):E110-13.
5. Greenberg NS, Glick M, Ship JA. *Burket's* (11th ed). BC Deckert Publishing 2008:86.
6. Bagan JV, Jimenez Y, Murillo J, Gavalda C, Poveda R, Scully C, et al. Lack of association between proliferative verrucous leukoplakia and human papillomavirus infection. *J Oral Maxillofac Surg* 2007;65:46-49.
7. Navarro CM, Sposto MR, Sgavioli-Massucato EM, Onofre MA. Transformation of proliferative verrucous leukoplakia to oral carcinoma: A 10 years follow-up. *Med Oral* 2004 May-Jul;9(3):229-33.
8. Bishen KA, Sethi A. Proliferative Verrucous Leukoplakia—diagnostic pitfalls and suggestions. *Med Oral Pathol Cir Bucal* 2009 Jun 1;14(6):E263-64.
9. Kumar MP, Prakash PA, Rao TM, Kumar RS. Rapidly progressive proliferative verrucous leukoplakia-Case report & diagnostic difficulties. *IJDA* 2011 July-Sep;3(3):632-34.
10. Silverman S Jr, Gorsky M. Proliferative verrucous leukoplakia: A follow-up study of 54 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1997;84:154-57.

## ABOUT THE AUTHORS

### Raj Kumar Badam (Corresponding Author)

Reader, Department of Oral Medicine and Radiology, Panineeya Institute of Dental Sciences and Research Centre, Hyderabad, Andhra Pradesh, India, e-mail: drrajkumar2724@gmail.com

### Sharath Chandra Bontha

Professor and Head, Department of Oral Medicine and Radiology Panineeya Institute of Dental Sciences and Research Centre Hyderabad, Andhra Pradesh, India

### Arshia Shereen

Postgraduate Student, Department of Oral Medicine and Radiology Panineeya Institute of Dental Sciences and Research Centre Hyderabad, Andhra Pradesh, India

### Supraja Chowdary

Postgraduate Student, Department of Oral Medicine and Radiology Panineeya Institute of Dental Sciences and Research Centre Hyderabad, Andhra Pradesh, India